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Learning Style: On Demand

Technology: Cisco

Difficulty: Intermediate

Course Duration: 40 Hours

Understanding Cisco Data Center Foundations (DCFNDU) V1.0 - On Demand

About this course:

The Understanding Cisco Data Center Foundations (DCFNDU) v1.0 course helps you prepare for entry-level data center roles.

In this course, you will learn the foundational knowledge and skills you need to configure Cisco data center technologies, including: networking, virtualization, SAN networking, and unified computing. You will get an introduction to Cisco Application Centric Infrastructure (Cisco ACI™), automation, and cloud computing. You will get hands-on experience with configuring features on Cisco Nexus® Operating System (Cisco NX-OS) and Cisco Unified Computing System™ (Cisco UCS®).

Course Objective:

After taking this course, you should be able to:

- Describe the foundations of data center networking
- Describe Cisco Nexus products and explain the basic Cisco NX-OS functionalities and tools
- Describe Layer 3 first-hop redundancy
- Describe Cisco Fabric Extender (FEX) connectivity
- Describe Ethernet port channels and virtual port channel (vPCs)
- Introduce switch virtualization, machine virtualization, and network virtualization
- Compare storage connectivity options in the data center
- Describe Fibre Channel communication between the initiator server and the target storage
- Describe Fibre Channel zone types and their uses
- Describe N-Port Virtualization (NPV) and N-Port Identifier Virtualization (NPIV)
- Describe data center Ethernet enhancements that provide a lossless fabric
- Describe Fibre Channel over Ethernet (FCoE)
- Describe data center server connectivity
- Describe Cisco UCS Manager
- Describe the purpose and advantages of application programming interfaces (APIs)
- Describe Cisco ACI
- Describe the basic concepts of cloud computing

Audience:

- Data center administrators
- Data center engineers
- Systems engineers
- Server administrators
- Network managers
- Cisco integrators and partners

Prerequisite:

To fully benefit from this course, you should have the following knowledge and skills:

- Good understanding of networking protocols

- Good understanding of the VMware environment
- Basic knowledge of Microsoft Windows operating systems

These are the recommended Cisco courses that may help you meet these prerequisites:

- Implementing and Administering Cisco Solutions (CCNA)
- Introducing Cisco Data Center Networking (DCICN)
- Introducing Cisco Data Center Technologies (DCICT)

Course Outline:

Describing the Data Center Network Architectures

Cisco Data Center Architecture Overview
Three-Tier Network: Core, Aggregation, and Access
Spine-and-Leaf Network
Two-Tier Storage Network

Describing the Cisco Nexus Family and Cisco NX-OS Software

Cisco Nexus Data Center Product Overview
Cisco NX-OS Software Architecture
Cisco NX-OS Software CLI Tools
Cisco NX-OS Virtual Routing and Forwarding

Describing Layer 3 First-Hop Redundancy

Default Gateway Redundancy
Hot Standby Router Protocol
Virtual Router Redundancy Protocol
Gateway Load Balancing Protocol

Describing Cisco FEX

Server Deployment Models
Cisco FEX Technology
Cisco FEX Traffic Forwarding
Cisco Adapter FEX

Describing Port Channels and VPCs

Ethernet Port Channels
Virtual Port Channels
Supported VPC Topologies

Describing Switch Virtualization

Cisco Nexus Switch Basic Components
Virtual Routing and Forwarding

Cisco Nexus 7000 Virtual Device Contexts (VDCs)
VDC Types
VDC Resource Allocation
VDC Management

Describing Machine Virtualization

Virtual Machines
Hypervisor
VM Manager

Describing Network Virtualization

Overlay Network Protocols
Virtual Extensible LAN (VXLAN) Overlay
VXLAN Border Gateway Protocol (BGP) Ethernet VPN (EVPN) Control Plane
VXLAN Data Plane
Cisco Nexus 1000VE Series Virtual Switch
VMware vSphere Virtual Switches

Introducing Basic Data Center Storage Concepts

Storage Connectivity Options in the Data Center
Fibre Channel Storage Networking
Virtual Storage Area Network (VSAN) Configuration and Verification

Describing Fibre Channel Communication Between the Initiator Server and the Target Storage

Fibre Channel Layered Model
Fabric Login (FLOGI) Process
Fibre Channel Flow Control

Describing Fibre Channel Zone Types and Their Uses

Fibre Channel Zoning
Zoning Configuration
Zoning Management

Describing Cisco NPV Mode and NPIV

Cisco NPV Mode
NPIV Mode

Describing Data Center Ethernet Enhancements

Institute of Electrical and Electronic Engineers (IEEE) Data Center Bridging
Priority Flow Control
Enhanced Transmission Selection

Data Center Bridging Exchange (DCBX) Protocol
Congestion Notification

Describing FCoE

Cisco Unified Fabric
FCoE Architecture
FCoE Initialization Protocol
FCoE Adapters

Describing Cisco UCS Components

Physical Cisco UCS Components
Cisco Fabric Interconnect Product Overview
Cisco I/O Module (IOM) Product Overview
Cisco UCS Mini
Cisco Integrated Management Controller (IMC) Supervisor
Cisco Intersight™

Describing Cisco UCS Manager

Cisco UCS Manager Overview
Identity and Resource Pools for Hardware Abstraction
Service Profiles and Service Profile Templates
Cisco UCS Central Overview
Cisco HyperFlex™ Overview

Using APIs

Common Programmability Protocols and Methods
How to Choose Models and Processes

Describing Cisco ACI

Cisco ACI Overview
Multitier Applications in Cisco ACI
Cisco ACI Features
VXLAN in Cisco ACI
Unicast Traffic in Cisco ACI
Multicast Traffic in Cisco ACI
Cisco ACI Programmability
Common Programming Tools and Orchestration Options

Describing Cloud Computing

Cloud Computing Overview
Cloud Deployment Models
Cloud Computing Services